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PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

A Locating Key for a Keyboard

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Name of Inventor: Alberto B. Sabato

This invention is best described in the following statement:

A LOCATING KEY FOR A KEYBOARD

Field of the Invention

The present invention relates to keys on a keyboard. More particularly, though not exclusively, the invention relates to locating keys for a computer keyboard which improve keyboard operating skills.

Background of the Invention

A substantial number of modern electronic devices are equipped with a keyboard of some sort for manually inputting commands into the devices. The most common form of keyboard is that of the common household and business PC keyboard.

The most widely recommended method of input using one of these common keyboards is the "touch typing" method. This method simply trains a user to memorise the keyboard layout so thoroughly that they may type using all their fingers without looking at the keyboard. This method is achieved by constant practice and assigning each finger to a particular group of keys.

In particular, the "touch typing" method places each respective finger lightly on a "home" key, for example, in the "qwerty" keyboard these home keys are "asdf" and "jkl;" from left to right. The thumbs are then placed over the space bar. Each finger rests lightly on its home key and does not move unless it reaches to strike keys immediately above or below the home key or in the case of each of the index fingers, the keys immediately to the side of the home key, then the finger quickly returns to its home key. Thus, each finger has only certain keys that it should strike.

Untrained keyboard operators use what is called the "hunt and peck" system. Usually they use only their two forefingers or at most their four best fingers, the forefinger and middle fingers. This method requires that the typist keeps their eyes on

the keyboard and this affects productivity. Although some of these typists can type about as fast as touch typists, very fast hunt and peck typing is more tiring than for the touch typist because the hands have to leap all around the keyboard to reach all the keys with only two or four fingers. In summary, to "keyboard" correctly, the typist must use the touch typing method described above. There is no middle ground in proper typing; if the typist is not typing correctly, he is typing incorrectly.

Therefore, there remains a need in the art for a keyboard that "forces" a typist to touch type correctly thus reducing typing inaccuracies and so minimising strain and effort.

Object of the Invention

It is an object of the present invention to overcome or ameliorate some of the disadvantages of the prior art or at least to provide a useful alternative.

Summary of the Invention

There is disclosed herein a locating key for a computer keyboard, said key including:

a body having a top portion defined by four edges and four walls depending downwardly from said edges,

wherein at least one of said edges includes at least one raised portion adapted for guiding a user's finger during use of said keyboard.

There is further disclosed herein a computer keyboard having a plurality of locating keys which include:

a body having a top portion defined by four edges and four walls depending downwardly from said edges,

wherein at least one of said edges includes at least one raised portion adapted for guiding a user's finger during use of said keyboard.

Preferably, said locating keys are arranged to form at least one wall which is adapted for providing sensorial feedback to a finger.

Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings, wherein:

Fig. 1 is a perspective view of a typical standard QWERTY keyboard.

Fig. 2A through 2H are schematic diagrams showing how certain keys of the QWERTY keyboard are modified in order to provide a positive feedback according to the present invention.

FIG. 3 is a perspective view of an improved QWERTY keyboard made in accordance with the present invention.

Description of an Embodiment of the Preferred Invention

The improved keyboard is the result of specific modifications to an original standard keyboard. This original keyboard 10 is in common use, and an example is illustrated in FIG. 1. For clarity, the generally accepted geometrical design of the standard keyboard will first be described in order to provide a foundation for understanding the geometry of the improved keyboard. However, while the modifications of the present invention are most likely to be applied to the standard keyboard, it must be noted that these same modifications may be applied to many other keyboard designs as well.

The keys of the standard keyboard 10 are generally identical in shape and size, except for the outer function and modifier keys which are usually horizontally elongated in order to give the complete standard keyboard a generally rectangular appearance.

The standard keyboard generally consists of a main alphanumeric body of at least three, but usually five, parallel, horizontal rows of keys (FIG. 1). Each of the three middle rows 12, 13, 14 normally include a sequence of alphabetical and grammatical characters (such as the QWERTY or Dvorak sequence), usually bordered on the end of each row by modifier or function keys of some sort. The lowest row of keys 24, positioned closest to the typist and immediately under the lower of the middle three main rows 14, is generally made up of modifier or function keys on either end of a long spacebar 15. The second highest row of keys 16, positioned above the upper of the middle three main rows 12, is generally made up mainly of numerical keys. The highest row 11 is normally made up of function keys.

While the horizontal rows 16, 12, 13, 14, 24 of the standard keyboard are usually aligned without deviation, the vertical alignment of the keys is usually staggered, and it is this specific juxtaposition of horizontal and vertical key relationships which make up the geometry of the standard keyboard 10 (FIG. 1). In particular, the reference for the vertical alignment shift is generally the home row, or middle row 13. The row 14 immediately beneath the home row, generally the lower alphabetical row, is usually organised in such a way that the keys of this row have their midpoints oriented in vertical alignment with or near the space between the keys of the home row 13. The row 12 immediately above the home row 13, generally the upper alphabetical row, is usually organised in such a way that the keys of this row have their midpoints oriented in vertical alignment with or near the left one-third vertical divider of the keys of the home row 13. Finally, the row 16 immediately above the upper alphabetical row 12, which is the row

above the home row 13, is usually organised in such a way that the keys of this row 16 have their midpoints oriented in vertical alignment with or near the space between the keys of the row 12 immediately beneath them.

This general key relationship is the essence of what is usually referred to as the standard keyboard geometry (FIG. 1). While the specific organisation of the alphanumeric characters assigned to the keys of such a keyboard may vary, this does not affect the geometrical description of the keyboard 10, or its applicability to the modifications of the improved keyboard.

The foundation of the improved keyboard 20 the subject of at least a preferred embodiment of this invention, one variation of which is shown in FIG. 3, is the idea of providing certain keys with the means of generating a specific feedback. The feedback differs according to the position of the key and is such that the feedback of certain keys together, creates a virtual "box" within which the fingers can travel. In other words, the keys are so modified that a "wall" is created, which wall the fingers sense and within which wall they are guided (and almost forced) to operate. Therefore, not only the specific design of the keys gives that typist the exact feel for where the finger is, but also the key is so modified that they almost "force" the typist to stay within the "walls" that the modifications have created.

This in turn facilitates (and almost forces) the use of specific fingers on specific keys and eventually makes a typist proficient in the use of the correct fingers and thus proficient in touch typing.

In the embodiment described here, the following keys of the standard QWERTY keyboard have been modified:

1. The key "Q" 21 has two ridges 22 applied to the top border and to the left border (FIG. 2A). These ridges 22 are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the upper left corner of an imaginary rectangular box formed by the four keys Q, R, V, Z 23.

2. The key "R" 24 has two ridges 25 applied to the top border and to the right border (FIG. 2B). These ridges 25 are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the upper right corner of the same imaginary rectangular box 23 described in 1 above.

3. The key "V" 26 has two ridges 27 applied to the bottom border and to the right border (FIG. 2C). These ridges 27 are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the lower right corner of the same imaginary rectangular box 23 described in 1 above.

4. The key "Z" 28 has two ridges 29 applied to the bottom border and to the left border (FIG. 2D). These ridges 29 are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the lower right corner of the same imaginary rectangular box 23 described in 1 above.

5. The keys "A" 30 and "F" 31 each have one ridge 32, 33 applied to the left border in the case of the home key "A" 30 and to the right border in the case of the key "F" 31 (FIG. 2E and FIG. 2F). These ridges 32, 33 are designed so that they provide the two fingers designated to use these keys with the feedback information that the fingers are in a "middle"

row since the feedback is that of a lateral ridge without a corner. In other words, the finger senses that it is not in a "corner" position.

6. The key "U" 34 has two ridges applied to the top border and to the left border (similar to as shown in FIG. 2A). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard namely, the upper left corner of an imaginary rectangular box formed by the four keys U, P, M, / 35.

7. The key "P" 36 has two ridges applied to the top border and to the right border (similar to as shown in FIG. 2B). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard namely, the upper right corner of the same imaginary rectangular box 35 described in 6 above.

8. The key "M" 37 has two ridges applied to the bottom border and to the left border (similar to as shown in FIG. 2D). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard namely, the lower right corner of the same imaginary rectangular box 35 described in 6 above.

9. The key "/" 38 has two ridges applied to the bottom border and to the right border (similar to as shown in FIG. 2C). These are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard namely, the lower right corner of the same imaginary rectangular box 35 described in 6 above.

10. The keys "J" 39 and ";" 40 each have one ridge applied to the left border in the case of the home key "J" 39 and to the right border in the case of the key ";" 40 (similar to as shown in FIG. 2E and FIG. 2F). These ridges are designed so that they provide the two fingers designated to use these keys with the feedback information that the fingers are in the middle row of the same imaginary rectangular box 35 described in 6 above.

In the same manner the numerical keys QWERTY keyboard 10 shown in FIG. 1, have been modified so that they provide the same positive feedback information and the fingers can operate within a "box" 41 formed by "walls" applied to the keys "7", "8", "9", "4", "6", "1", "2 and 3". It can be seen that the modifications are identical to those for similarly positioned keys of the alphabetical portion of the keyboard 20, except for keys "8" 42 and "2" 43, thus:

1. The key "7" has two ridges applied to the top and to the left border (similar to as shown in FIG. 2A). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the upper left corner of an imaginary rectangular box 41 formed by the four keys 7, 9, 1, 3.

2. The key "9" has two ridges applied to the top border and to the right border (similar to as shown in FIG. 2B). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the upper right corner of the same imaginary rectangular box 41 described in 1 above.

3. The key "3" has two ridges applied to the bottom border and to the right border (similar to as shown in FIG. 2C). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the lower right corner of the same imaginary rectangular box 41 described in 1 above.

4. The key "1" has two ridges applied to the bottom border and to the left border (similar to as shown in FIG. 2D). These ridges are designed so that they provide the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the lower left corner of the same imaginary rectangular box 41 described in 1 above.

5. The key "4" has one ridge applied to the left border (similar as shown in FIG. 2E) which ridge is so designed so that it provides the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the left middle edge of the same imaginary rectangular box 41 described in 1 above.

6. The key "6" has one ridge applied to the right border (similar as shown in FIG. 2F) which ridge is so designed so that it provides the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the right middle edge of the same imaginary rectangular box 41 described in 1 above.

7. The key "8" 42 has one ridge 44 applied to the top border (similar as shown in FIG. 2G) which ridge is so designed so that it provides the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the top middle edge of the same imaginary rectangular box 41 described in 1 above.

8. The key "2" 43 has one ridge 45 applied to the bottom border (similar as shown in FIG 2H) which ridge is so designed so that it provides the finger with the feedback information that it has reached a specific position on the keyboard 20 namely, the bottom middle edge of the same imaginary rectangular box 41 described in 1 above.

It can be seen that the identical modifications described above can be used if desired to modify the directional keys 46 used to move the cursor around the screen of a computer and which are known as the "inverted T", or similarly the functional keys 47 ("Insert", "Home", "PageUp", "Delete", "End", "PageDown"), to obtain similar locational feel and feedback.

It can also be seen that the modifications described in number 4 and 6 above, can be used, if desired, to modify the keys "1", "4", "7", "0" 48 of the row 16 of the QWERTY keyboard 10 of FIG.1 one obtains similar locational feel and feedback.

While the above description contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment thereof. For example, different standard keyboards can be similarly modified. Additionally, the "walls" on the keys can be of different height, thickness, shape and appearance and still activate the feedback which is the subject of this invention. Additionally, this invention may be applied to keyboards molded to curved surfaces such as the "Microsoft Natural Keyboard" and equivalent keyboards, or using non-alphanumeric keys or designations, chording capabilities, single or multiple-hand designs, or miniaturization. Additionally, the ridges can be formed of plastic material with a self-adhesive backing for attachment to keys of a "normal" keyboard.

Although the invention has been described with reference to specific examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms.

Dated 21 June, 1999

Alberto B. Sabato

Patent Attorneys for the Applicant/Nominated Person

SPRUSON & FERGUSON

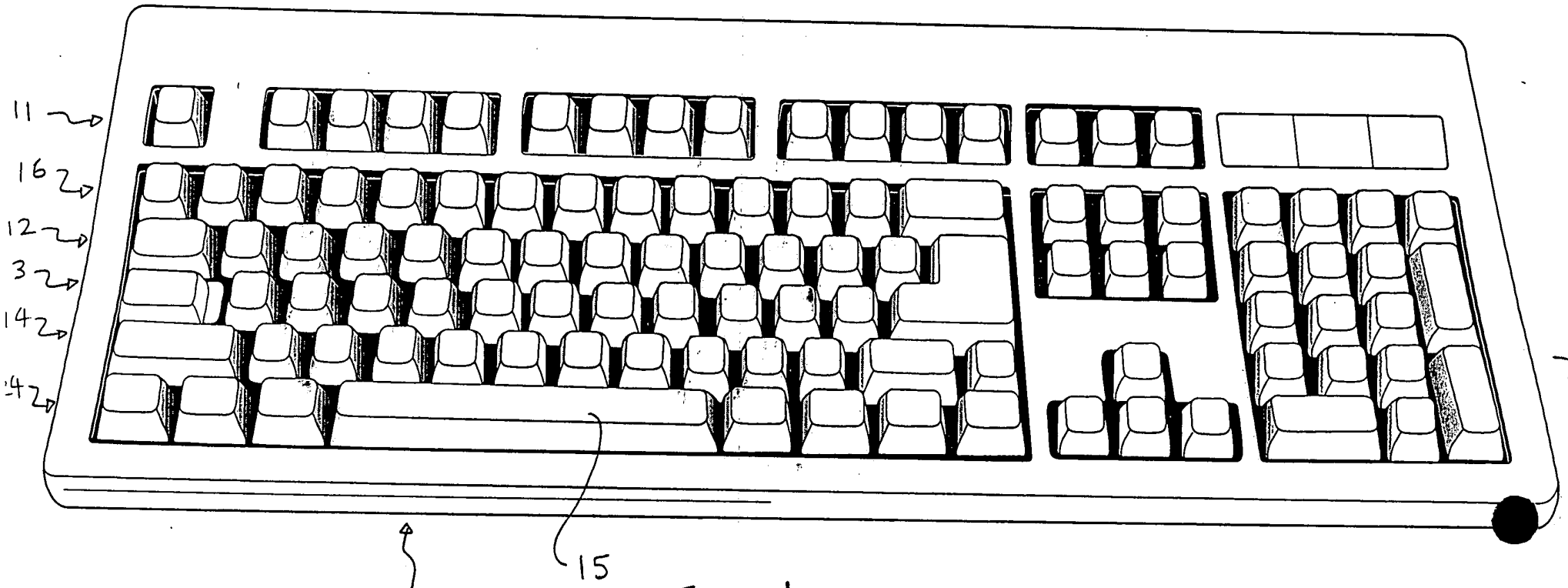
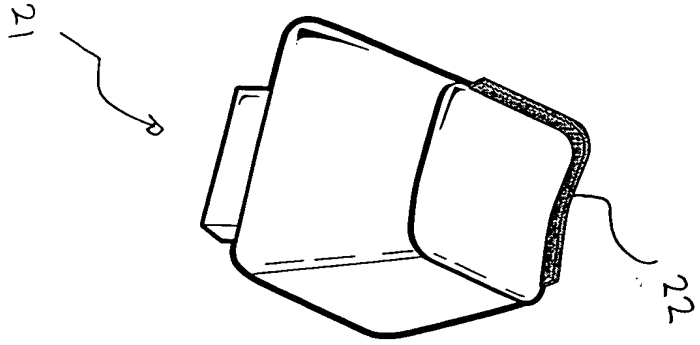


FIG. 1



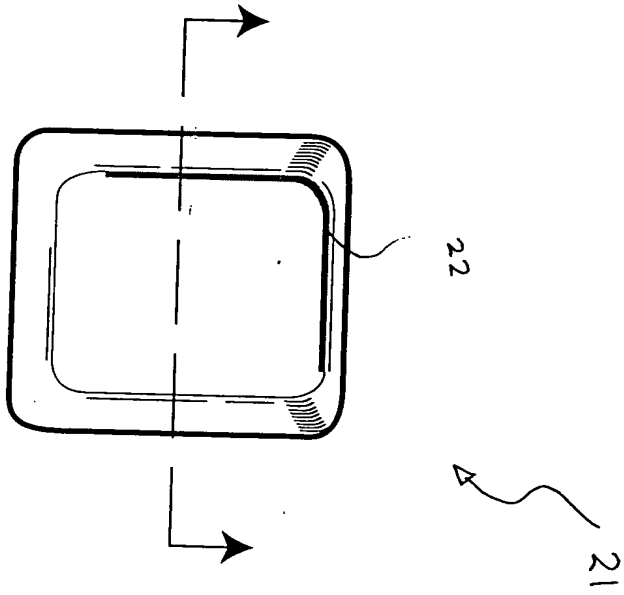
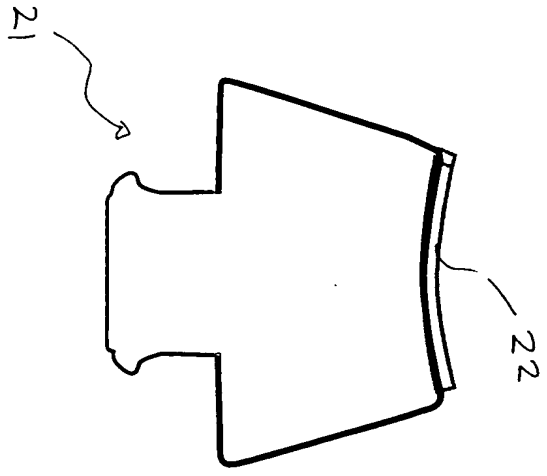


FIG. 2A



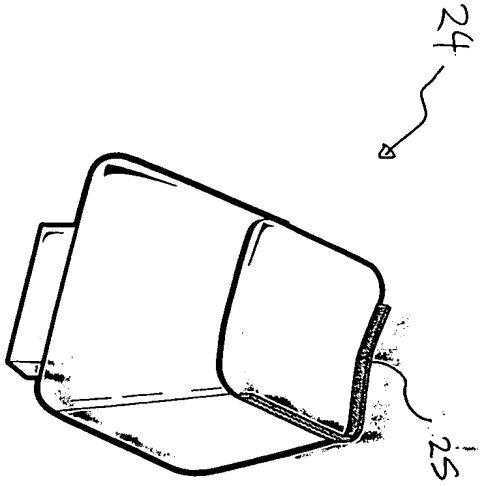
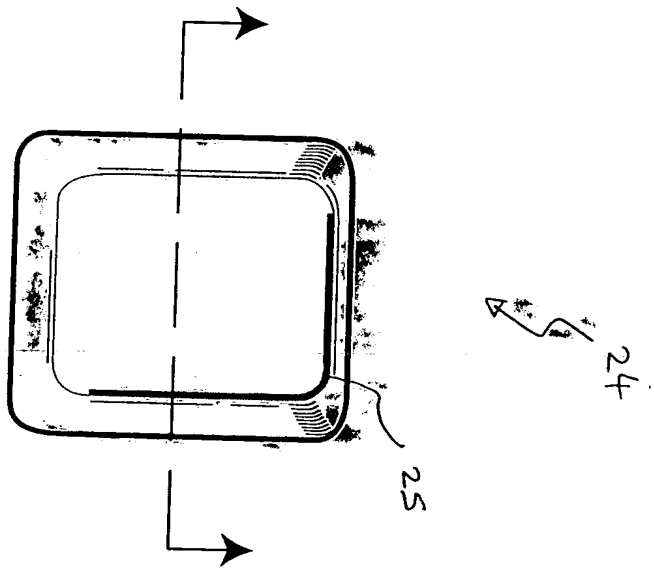
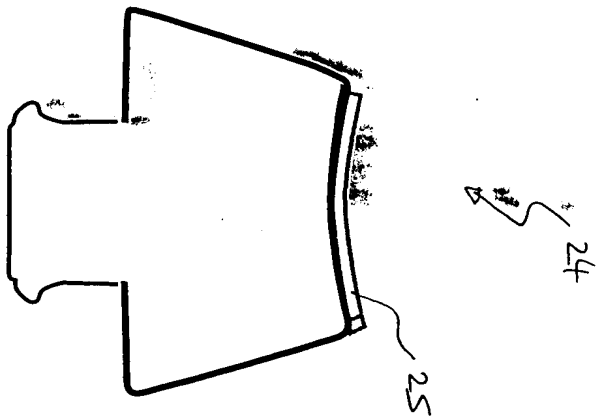
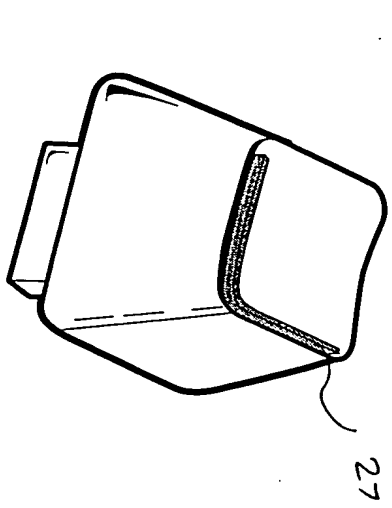


FIG. 2B





2B



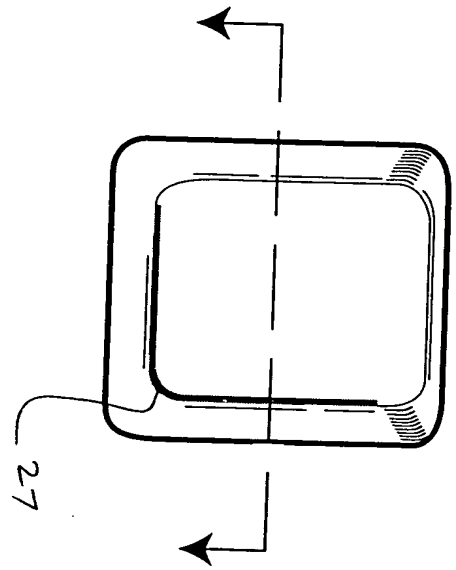
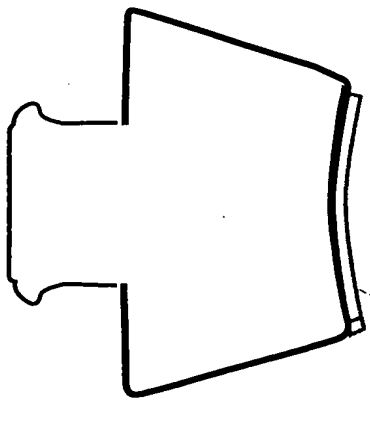
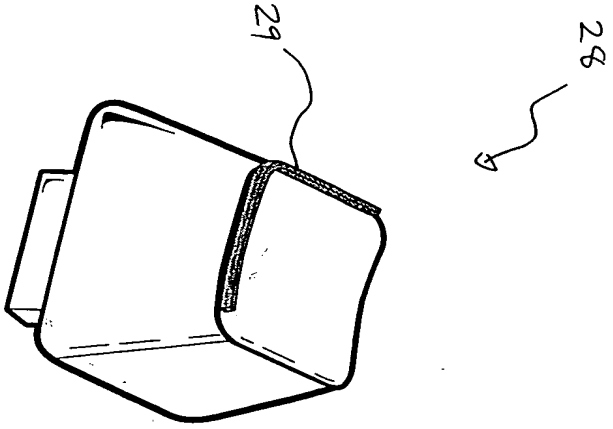


FIG. 2C





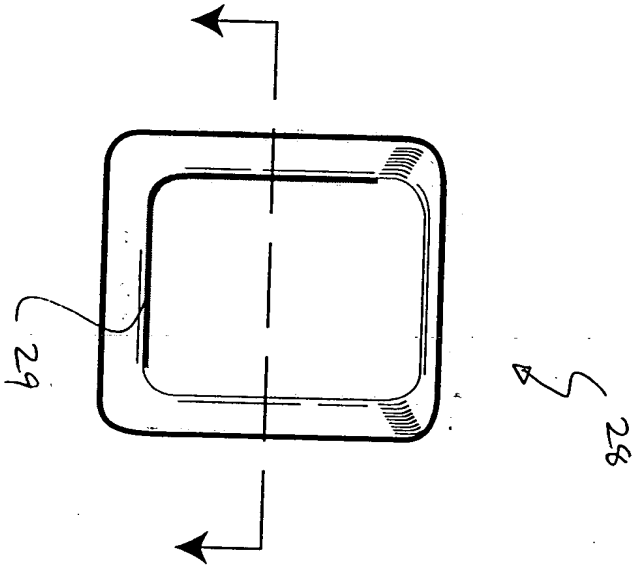
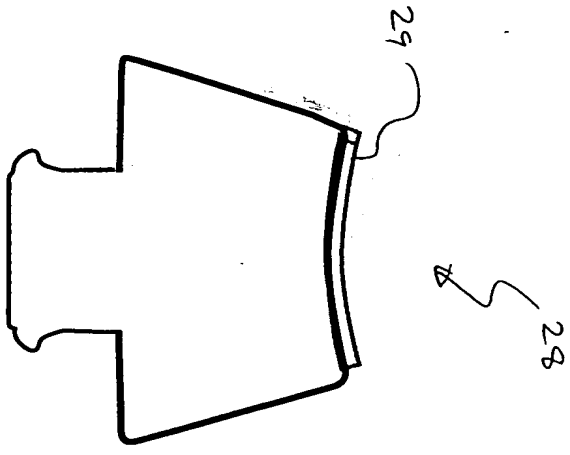
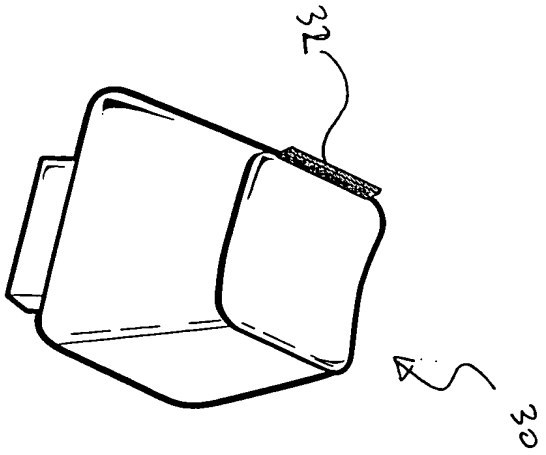


FIG. 2D





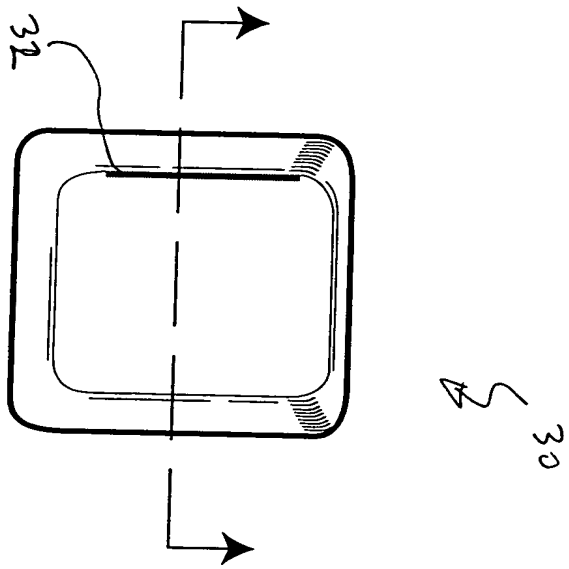
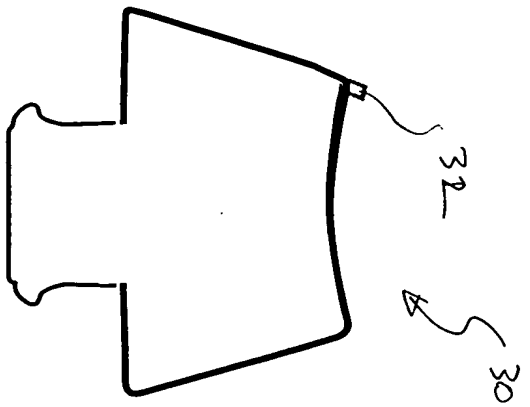
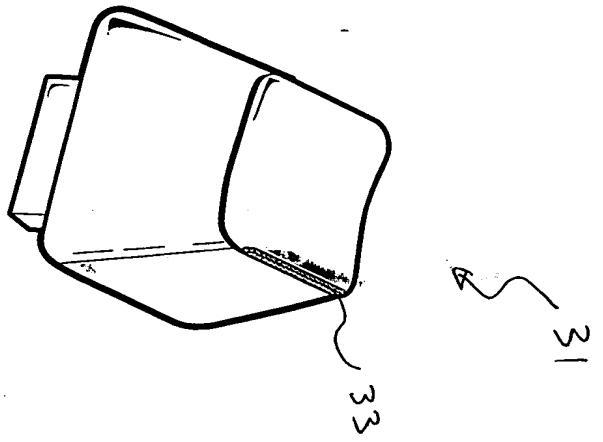


FIG. 2E





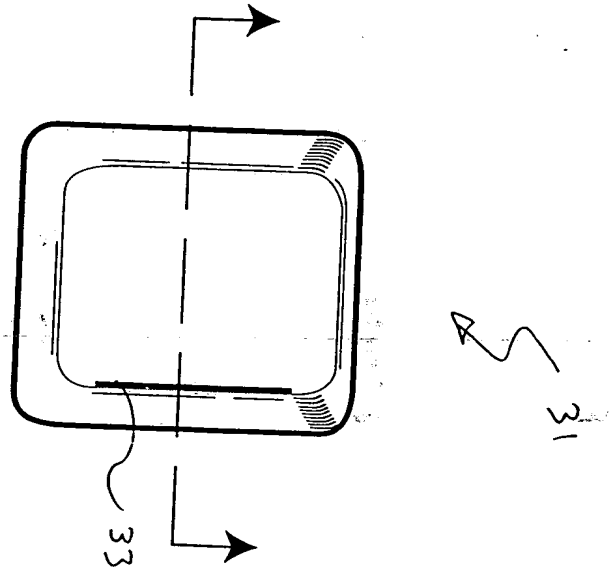
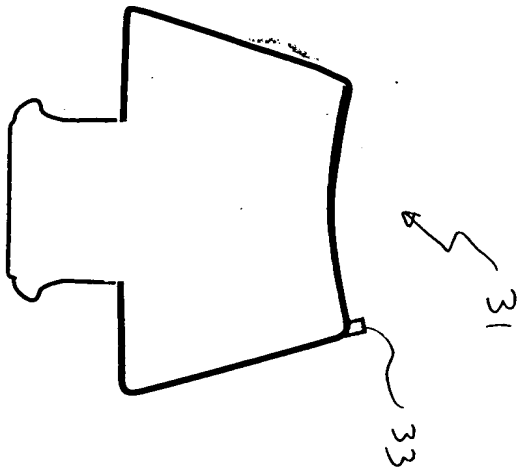
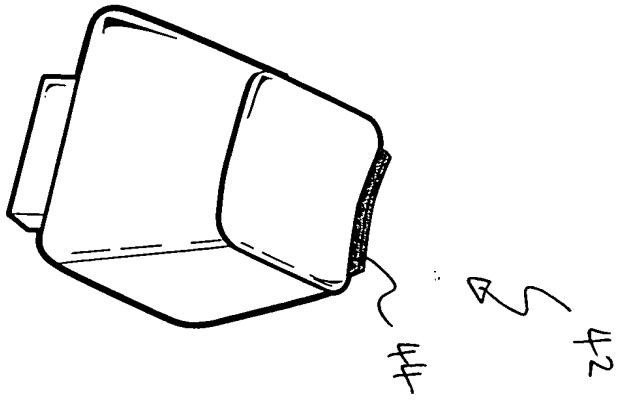


FIG. 2F





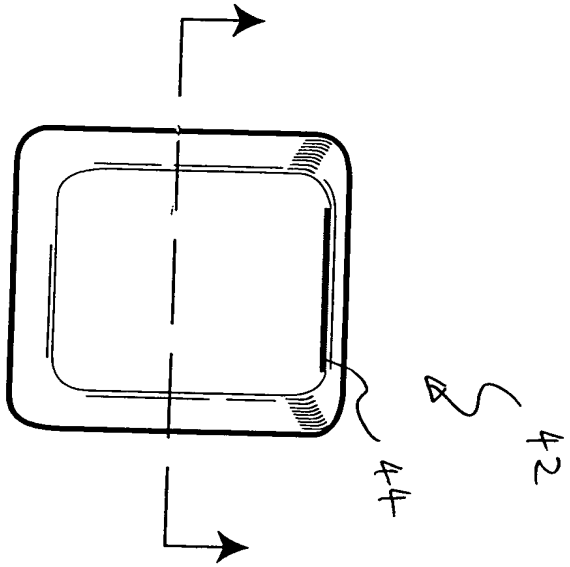
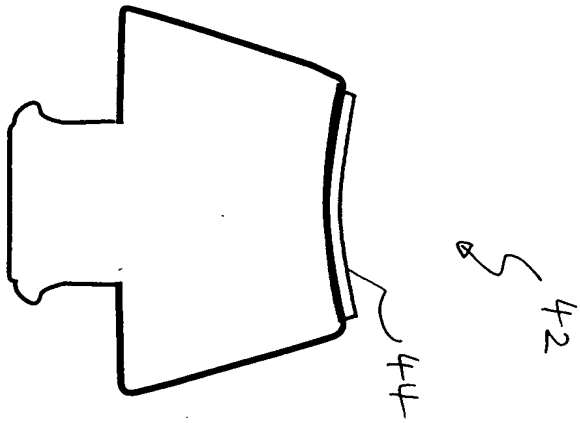


FIG. 2G



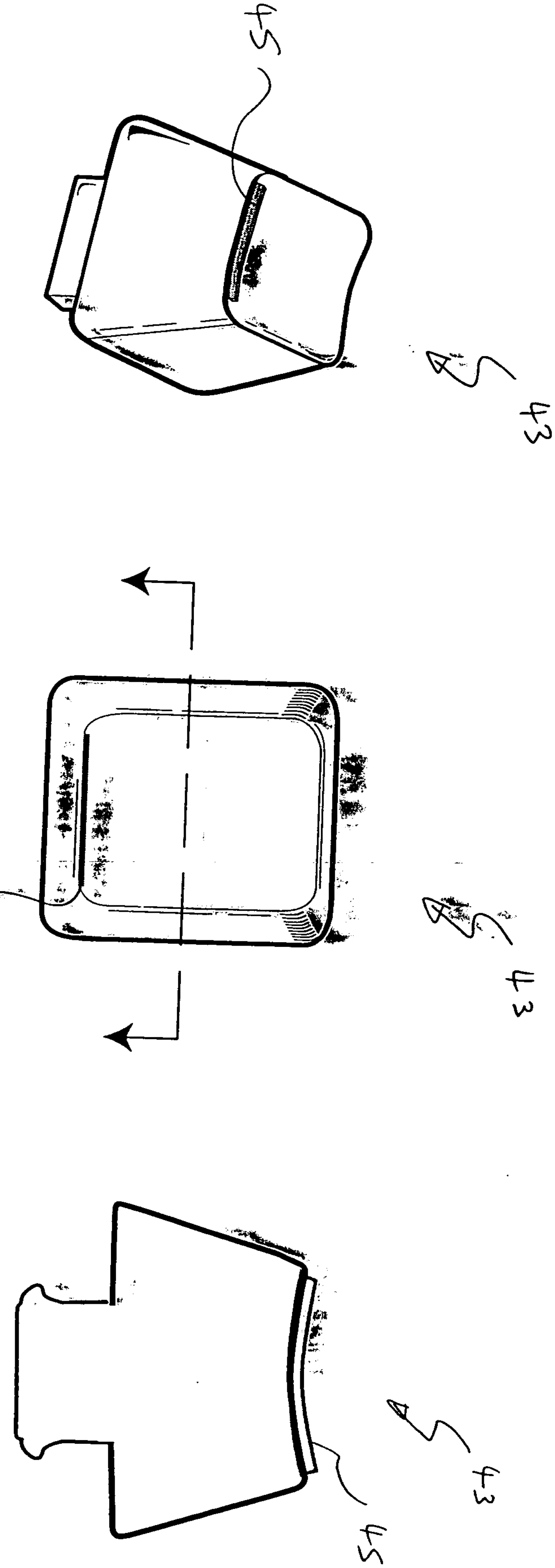


FIG. 2H

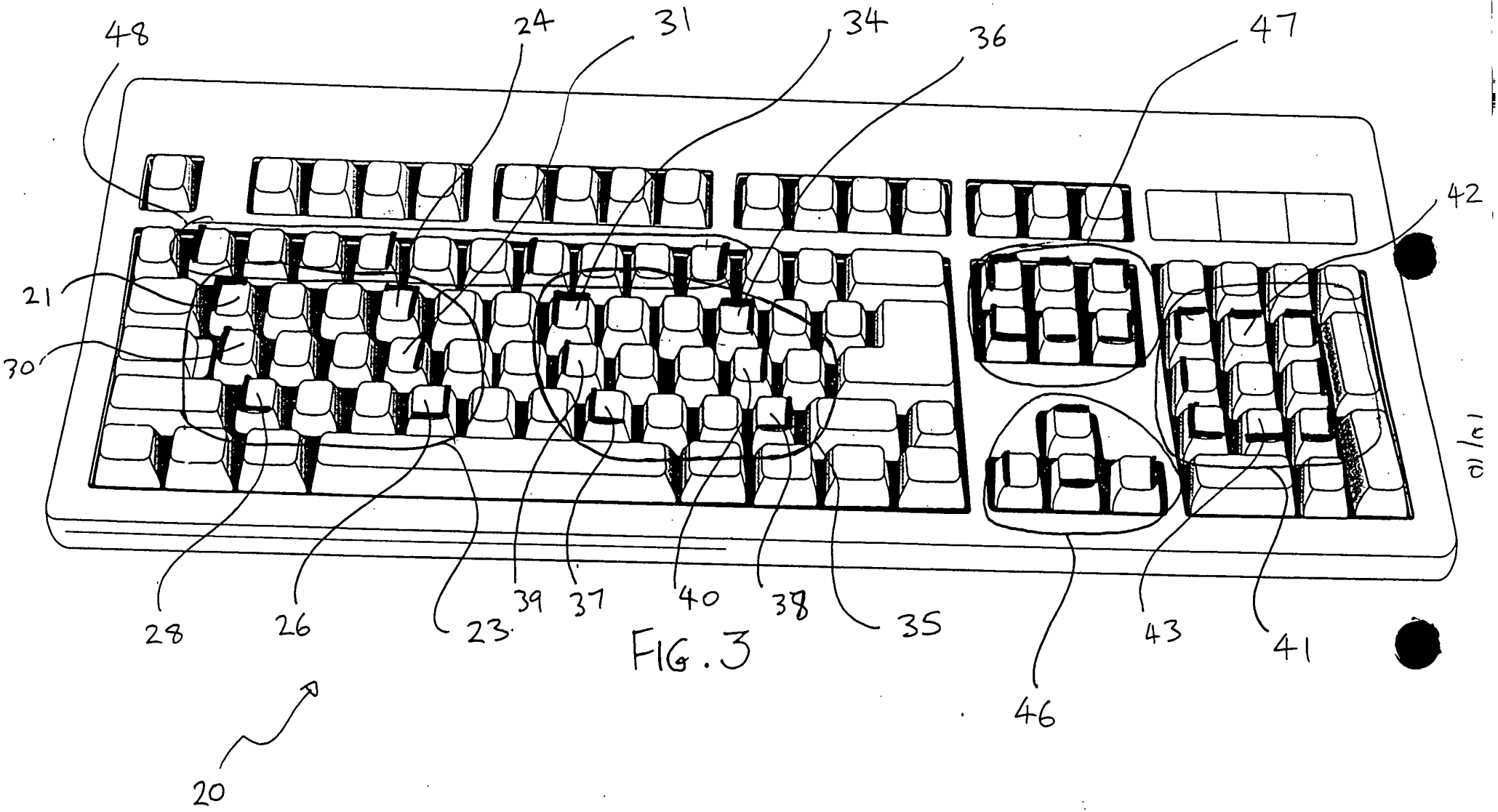


FIG. 3